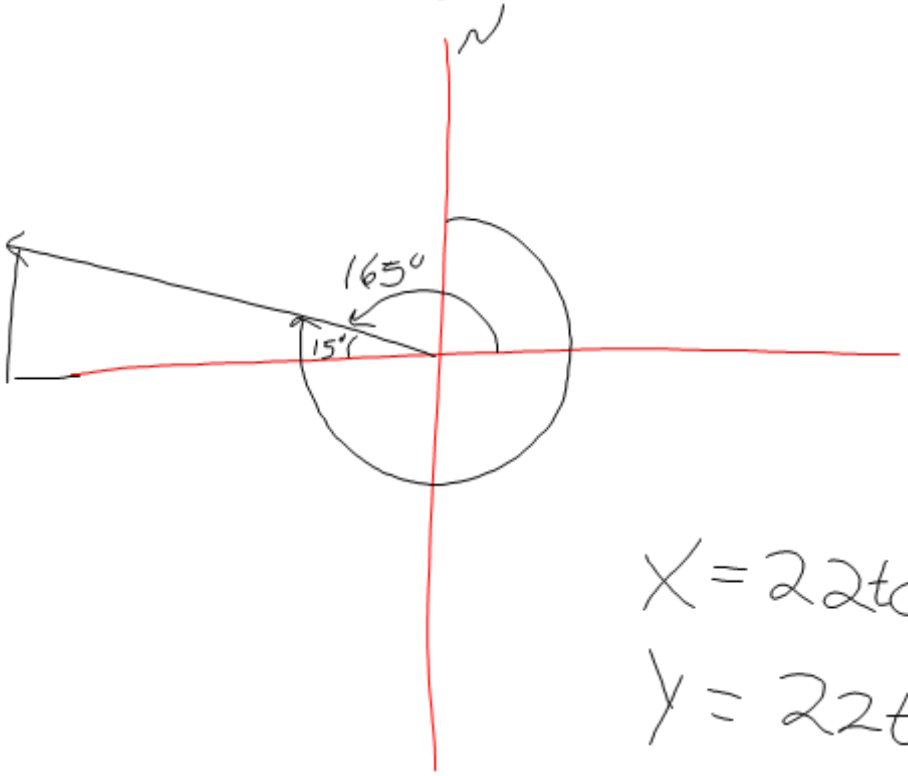
bearing = heading



$x = 22t\cos 165$ or $x = -22t\cos 15$

$y = 22t\sin 165$ or $y = 22t\sin 15$

Self-Assessment

① Eliminate the parameter and write as a function of x

$x = 2t - 1 \qquad y = t^2 + 1$

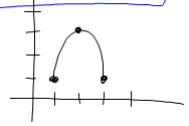
① Solve for t in x-eq.
② plug in to y-eq

$y = \left(\frac{x+1}{2}\right)^2 + 1$

② Write parametric equations for a line of slope $\frac{2}{3}$ passing through $(4, 1)$ $\quad x = x_0 + at$, $y = y_0 + bt$

$x = 4 + 3t$
$y = 1 + 2t$

③ a) Write parametric equations for



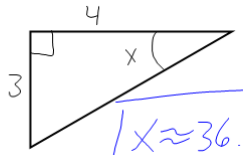
b) Sketch the result of applying the following transformations to the equations you found in a) if $x = f(x)$ and $y = g(x)$

$\rightarrow x = -f(x) \qquad y = g(x)$

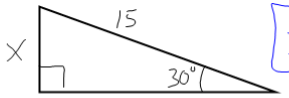
$\rightarrow x = f(x) + 1 \qquad y = g(x) - 2$

$x = t$
$y = 2\sqrt{1 - (t-2)^2} + 1$

④ Solve for x

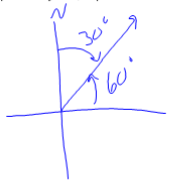


$x \approx 36.86°$



$x = 7.5$

⑤ Write parametric equations for a tanker sailing on a bearing of 30° at 25 mph. How far north and east is it after 4 hours?



$x = 25t\cos 60 = 50 \text{ mile } E$
$y = 25t \sin 60 = 86.6 \text{ mile } N$